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(FILE 'HOME' ENTERED AT 13:33:37 ON 20 MAY 2003)

FILE 'CA' ENTERED AT 13:33:46 ON 20 MAY 2003

L1 16597 S (ADDITION OR DILUTION OR SUBTRACT?) (4A) (SUCCESSIVE? OR SERIAL? OR
INCREMENT? OR MULTIPLE OR PLURAL? OR SERIES OR STEPWISE OR STEP WISE
OR REPEAT? OR ITERAT? OR SEQUENTIAL? OR PROGRESSIVE? OR CONSECUTIVE?)
L2 278610 S (TEMPERATURE OR CONCENTRAT? OR COMPOSITION) (4A) (DEPENDENT OR
DEPENDANT OR FUNCTION)
L3 281 S L1 AND L2
L4 75 S L3 AND (AUTOMAT? OR PLOT? OR GRAPH? OR DIAGRAM? OR MODEL? OR
SYSTEMATIC OR EMPEIRICAL)
L5 162 S L1 AND (PHASE OR TURBID?) (6A) (DETERMIN? OR DETECT? OR MEASUR? OR
MONITOR? OR MODEL?)
L6 61 S L5 AND (AUTOMAT? OR PLOT? OR GRAPH? OR DIAGRAM? OR MODEL? OR
SYSTEMATIC OR EMPEIRICAL)
L7 30289 S (DEPENDENT OR DEPENDANT OR INDEPENDENT OR INDEPENDANT) (4A) (VARIABLE
OR FACTOR)
L8 28 S L1 AND L7
L9 2018 S L2 AND L7
L10 130 S TEMPERATURE (6A) L7 AND (CONCENTRAT? OR COMPOSITION) (6A) L7
L11 8196 S TEMPERATURE (6A) (VARY? OR CHANG?) AND (CONCENTRAT? OR COMPOSITION) (6A)
(VARY OR CHANG?)
L12 208 S L11 AND (PHASE OR TURBID?) (6A) (DETERMIN? OR DETECT? OR MEASUR? OR
MONITOR? OR MODEL?)
L13 1 S L1 AND L12
L14 116 S L12 AND (AUTOMAT? OR PLOT? OR GRAPH? OR DIAGRAM? OR MODEL? OR
SYSTEMATIC OR EMPEIRICAL)
L15 50 S L10 AND (AUTOMAT? OR PLOT? OR GRAPH? OR DIAGRAM? OR MODEL? OR
SYSTEMATIC OR EMPEIRICAL)
L16 327 S L4, L6, L8, L13-15
L17 80 S L10 NOT L16
L18 10 S L17 AND (DIELECTRIC OR EQUILIBRIA)
L19 257 S L16, L18 NOT PY>1998
L20 2 S L16, L18 NOT L19 AND PATENT/DT
L21 259 S L19-20
L22 251 S L21 NOT GRAPHITE
E SKOLD R/AU
L23 23 S E3-4, E6-7
E SKOELD R/AU
L24 33 S E3-7
L25 56 S L23-24
L26 15 S L25 AND TEMPERATURE

=> d bib,ab 1-251 122

L22 ANSWER 24 OF 251 CA COPYRIGHT 2003 ACS

AN 128:184970 CA

TI Effect of temperature on the phase behavior of ionic-nonionic
microemulsions

AU Aramaki, Kenji; Ozawa, Kazuyo; Kunieda, Hironobu

CS Grad. School Engineering, Yokohama National Univ., Yokohama, 240, Japan

SO Journal of Colloid and Interface Science (1997), 196(1), 74-78

AB Microemulsions are formed over a wide range of temps. in brine/sodium
dodecyl sulfate/polyoxyethylene dodecyl ether (C12EO2 or C12EO3)/decane
systems. In a dil. region, lamellar liq. crystal is present instead of
bicontinuous microemulsion at the compn. at which the HLB of the mixed
surfactant is optimum in the given system. The monomeric solubilities of

C12EO2 or C12EO3 in oil and the mixing fraction of C12EO2 or C12EO3 in the mixed surfactant layer were detd. using the geometrical relation of three-phase tie triangle contg. the liq. crystal phase in the compn. tetrahedron and were compared at 35 and 60°C. The change in the HLB compn. with temp. is well described by increasing the monomeric soly. and decreasing the mixing fraction of nonionic surfactant in the surfactant layer. As a result, temp.-insensitive microemulsions are formed in the SDS-C12EO3 system.

L22 ANSWER 41 OF 251 CA COPYRIGHT 2003 ACS

AN 126:285690 CA

TI Smectic compressibility of polymer-containing lyotropic lamellar phases: an experimental tool to study the thermodynamics of polymer confinement

AU Ligoure, C.; Bouglet, G.; Porte, G.; Diat, O.

CS Groupe de Dynamique des Phases Condensees C.C.26, Universite Montpellier II, Montpellier, 34095, Fr.

SO Journal de Physique II (1997), 7(3), 473-491

AB The authors study a mixed amphiphilic system formed from a brine swollen surfactant lamellar phase in between the bilayers of which is incorporated a neutral water-sol. nonadsorbing polymer: polyvinylpyrrolidone (PVP) with a very large mol. wt. This system allows an exptl. realization of the various regimes of polymer confinement within infinite slits. The presence of polymer will induce a new effective interaction between the bilayers which depends on the confinement regime of the macromol. soln. The authors calc. the contribution of this polymer mediated interaction to the smectic compressibility in the four expected regimes of polymer confinement and show that it is a non monotonic function of the polymer concn. This smectic compressibility is of particular interest because it can be readily derived from small angle scattering measurements. The authors' model allows a quant. interpretation of the crit. L.alpha./L.alpha. phase sepn. which is obsd. upon progressive addn. of salt at a particular compn. of the system.

L22 ANSWER 53 OF 251 CA COPYRIGHT 2003 ACS

AN 125:122748 CA

TI Studies of fulvic and humic acids. 1. Determination of the steady states for slow processes in 0.1 M NaCl aqueous solution at 25°C

AU Wahlberg, Olle; Aagren, Staffan

CS Dep. Chem., Royal Inst. Technol., Stockholm, S-100 44, Swed.

SO Acta Chemica Scandinavica (1996), 50(7), 561-566

AB Humic substances in natural waters are dynamic systems. High-precision EMF methods were used to measure pH as a function of time and total concn. of humic substances after sequential addns. of NaOH. After each addn. of base, the time deriv. of pH asymptotically approached a const. value, a steady state. We obsd. phenomena typical for dynamical systems, such as oscillations. The steady-state rates of slow, pH dependent reactions were measured for humic acids extd. from soil for 2.5 < pH < 8.5 and total concns. of humic substances within 6-116 mg DOC/dm3 and for fulvic acids from a lake water for 2.5 < pH < 8.5 with 28 mg DOC/dm3 (original sample) and 7 mg DOC/dm3 (dild. sample). Simple models are suggested to explain the observations.

L22 ANSWER 63 OF 251 CA COPYRIGHT 2003 ACS

AN 123:238982 CA

TI Determination of solubility of solid, liquid, or gas solutes in a solvent by isoplethic thermal analysis

IN Berthet, Jacques; Counioux, Jean-Jacques

PA Universite Claude Bernard Lyon I, Fr.

SO Fr. Demande, 21 pp.
 PI FR 2712090 A1 19950512 FR 1993-13402 19931104
 PRAI FR 1993-13402 19931104
 AB For easy construction of a phase diagram, useful for industrial processing, the concn. of a soln. is varied at const. ref. temp. and the thermal effects of the concn. change are detd. to give the temp. change as a function of the concn. (i.e., $\Delta T = f(c)$). The concn. is varied by addn. of solvent, so that $\Delta T = f(V)$ where V is the solvent vol.

L22 ANSWER 66 OF 251 CA COPYRIGHT 2003 ACS
 AN 123:153488 CA
 TI Self-assembly in double-tailed surfactants in dilute aqueous solutions
 AU Svitova, Tatiana F.; Smirnova, Yulia P.; Pisarev, Sergey A.; Berezina, Nataly A.
 CS Institute of Physical Chemistry, Russian Academy of Sciences, Leninsky prosp., 31, Moscow 117915, GSP-1, Russia
 SO Colloids and Surfaces, A: Physicochemical and Engineering Aspects (1995), 98(1/2), 107-15
 AB The phase behavior and aggregation of dialkyldimethylammonium bromides (alkyl chain lengths 8, 10, 12, 16) in dil. aq. solns. (concns. < 1%) were studied by static light scattering, densitometry, and freeze-fracture electron microscopy. Surface and interfacial tension measurements were performed by drop wt. and spinning drop methods. Phase diagrams detd. for dialkylammonium bromide/H₂O systems at 20-60° show 4 areas: (1) mol. soln.; (2) vesicular soln. with small unilamellar vesicles (D = 30-70 nm, depending on the alkyl chain length); (3) a 2-phase region, where 2 populations of aggregates coexist (small vesicles and large liposomes); (4) a random lamellar L₃ phase. It is important to note that vesicle and liposome formation occurred spontaneously on consecutive dilns. of the L₃ phase. Surface and interfacial tension measurements show that aggregation in the bulk solns. are accompanied by unusually sharp decreases of the surface and interfacial tensions; the tension at the L₃ phase/octane interface drops to an ultralow value (0.01 mN m⁻¹). Langmuir balance studies of diC12 deriv. and diC16 deriv. monolayers on the aq. subphase were performed, and some hysteresis in the compression-decompression cycles was obsd. (probably due to partial dissoln. of amphiphiles). The min. area per surfactant mol. in the condensed monolayers is independent of the alkyl chain length (68 Å²). The structural transformation vesicles/large liposomes/lamellar phase is illustrated by electron micrographs.

L22 ANSWER 70 OF 251 CA COPYRIGHT 2003 ACS
 AN 122:264824 CA
 TI A study of the effect of solvent composition on the acidity function H₀
 AU Mallah, N. M. El
 CS Faculty Science, Alexandria University, Alexandria, Egypt
 SO Alexandria Engineering Journal (1995), 34(1), D1-D8
 AB A spectrophotometric method was used to det. the dissocn. const. of P-nitronaphthylamine indicator in acetamide-water, and propionamide-water mixts. at 25°C. The pK_a values, calcd. by a stepwise comparison method, were found to decrease with increasing the org. solvent water ration. The addn. of the org. solvent component increases the basicity of water due to the progressive breakdown of the tetrahedral structure of water [1]. Thus, instead of having only the structure H⁺(H₂O)₄, one may also have the structure H⁺(H₂O)₂, since the affinity in the open structure is less than in the compact structure in which the proton becomes more firmly bound. The free energies of transfer $\Delta G_{\text{ot}}(\text{H}^+)$ were calcd. for the transfer of the solvated proton from water to aq. acetamide (Ac) or aq. propionamide (Pr). In this system, the acidity function of hydrochloric acid solns. was found

to increase with increasing the org. solvent component. The partition of the proton between H₂O and the org. solvent was calcd. in both water-rich and solvent-rich mixts. In water-rich solvent mixts., the equil. A, H₃O⁺ + solvent (S) \rightleftharpoons HS⁺ + H₂O, is shifted to the right, and applies successfully up to 30 wt % solvent. Plots of Ho +log [HCl] against the solvent compn. ratio [S]/[H₂O] are straight lines in all cases with slopes equal to K'¹/2.3. The values of the equil. const. K'¹ amt. to 14.95 and 19.55 for the H₂O-Ac and H₂O-pr solvent systems, resp. In the org. solvent rich system (>40 wt % solvent), the equil. A is shifted to the left. The value of the equil. const. K'² amts. to 0.207 for Ac-H₂O. With known values of K'¹ and K'², it is possible to calc. [H₃O⁺] and [HS⁺] in any solvent system. Such calcns. show that, at a fixed acid concn., [H₃O⁺] decreases with progressive addn. of solvent, while the [HS⁺] values show an increase.

L22 ANSWER 71 OF 251 CA COPYRIGHT 2003 ACS

AN 121:264343 CA

TI Ribbon phases in surfactant systems. Comparisons between exptl. results and predictions of a theoretical model

AU Hagslaett, Haakan; Soederman, Olle; Joensson, Bengt

CS Univ. Lund, Lund, S-221, Swed.

SO Liquid Crystals (1994), 17(2), 157-77

AB Ribbon phases consist of long cylindrical aggregates that have non-circular normal sections. The authors have recently pointed out that scattering data for a large no. of different intermediate ribbon phases of lower than hexagonal symmetry found in ionic surfactant systems indicate that these phases have a structure possessing a central rectangular symmetry. The aggregate dimensions are reported for phases with cylindrical aggregates (i.e., the hexagonal phases and the centered rectangular ribbon phases). Previously published phase diagrams and SAXS, SANS, and 2H NMR data for these phases in different systems were used for this purpose. The results indicate that the axial ratios of the aggregates increase when the temp. decreases, when the surfactant concn. increases, and when the av. surfactant charge decreases. Models that semi-quant. describe the thermodyn. of the micellar, hexagonal, and lamellar phases (which are based on the Poisson-Boltzmann cell model approach) have been presented previously in the literature. The authors extend these models to treat also the ribbon phases. The results from the calcns. show the same trends with respect to changes in the dimensions of the non-circular aggregates upon changes in temp., surfactant concn., and av. surfactant charge, as those obtained exptl. Theor. calcd. phase diagrams with ribbon phases are also presented. Based on the prediction of the model and some previously published exptl. data for hexagonal phases, the formation of non-circular, cylindrical aggregates is a general property of single-chain, ionic surfactant/H₂O systems, and that these aggregates in general pack on hexagonal lattices. The normal sections of these aggregates are circular on av., on account of the fact that the degree of deformation and the orientation of deformation changes along the axis of the aggregates and with time. Only for some systems, temps. and surfactant concns. do the sym. aggregates line up and ribbon phases with central rectangular symmetry are obtained. The driving mechanisms for the transition from the hexagonal phase with asym. (fluctuating) cylinder and further to the centered rectangular phase with asym. (stiff) cylinders is also discussed. This phase transition is the 1st order.

L22 ANSWER 72 OF 251 CA COPYRIGHT 2003 ACS

AN 121:234994 CA

TI Activities of nickel, cobalt, and manganese silicates in magmatic liquids and applications to olivine/liquid and to silicate/metal partitioning

AU Hirschmann, Marc M.; Ghiorso, Mark S.
CS Dep. Geological Sciences, Univ. Washington, Seattle, WA, 98195, USA
SO *Geochimica et Cosmochimica Acta* (1994), 58(19), 4109-26
AB The activities of $\text{NiSiO}_{0.5}\text{O}_2$, $\text{CoSiO}_{0.5}\text{O}_2$, and $\text{MnSiO}_{0.5}\text{O}_2$ in magmatic liqs. have been calibrated from exptl. detd. distributions of Ni, Co, and Mn between olivine and silicate melt. Chem. potentials of these species in silicate liqs. are extd. from an expression for the chem. potentials of minor components in olivine and are described by an extension of the regular soln. model of Ghiorso and Sack (1994). The extended liq. mixing model, together with the mixing model for multicomponent olivine, retrieves, olivine/liq. DMol/liq for Ni, Co, and Mn with av. abs. values of deviations equal to 14%, 13%, and 14%, resp. Partitioning of Ca between olivine and liq., using previously calibrated chem. potentials of CaMgSiO_4 in olivine and CaSiO_3 in silicate melt, is reproduced with an av. relative deviation of 18%. Extrapolation of these models successfully predicts exptl. detd. partitioning of Ni and Co between olivine and ultramafic liqs. to $>2000^\circ\text{C}$ and 100 kbar, thereby casting doubt on the importance of pressure-induced coordination changes to the geochem. of Ni and Co under these conditions. Calcd. partitioning of Ni and Co between silicate liq. and molten metal indicates that these elements remain markedly siderophile to temps. greater than 3000 K. Calcns. suggest that the siderophile behavior of Ni and Co may be reduced by increasing pressure. Forward modeling of phase equil. and Ni partitioning during crystn. of mafic melts from Hawaii suggests that the Ni/MgO systematics of Hawaiian basaltic glasses are consistent with a parental liq. having 17% MgO and 760 ppm Ni. Activity coeffs. of $\text{NiSiO}_{0.5}\text{O}_2$, and $\text{MnSiO}_{0.5}\text{O}_2$ in natural magmas are generally greater than unity, owing in a large part to pos. energetic interactions between transition metals and SiO_2 . The primary detg. compositional variable for these liq. activity coeffs. and partition coeffs. is molar silica content. The effects of changing temp. and liq. compn. on olivine/liq. partitioning of Ni, Co, and Mn are comparable and complementary, leading to more compatible behavior at lower temps. and in more evolved liqs. Activity coeffs. are greatest for $\text{NiSiO}_{0.5}\text{O}_2$, and smaller for $\text{CoSiO}_{0.5}\text{O}_2$ and $\text{MnSiO}_{0.5}\text{O}_2$. Compositional variation of mineral/liq. partitioning and of activity coeffs. owing to interactions with SiO_2 are likely to be important for many other trace elements.

L22 ANSWER 76 OF 251 CA COPYRIGHT 2003 ACS

AN 121:111966 CA

TI Phase behavior and HLB temperature of a nonionic surfactant with polydisperse poly(oxyethylene) chains

AU Muto, Masakazu; Naito, Noboru; Kunieda, Hironobu

CS KOSE Cosmetic Laboratorie, Tokyo, 114, Japan

SO *Yukagaku* (1994), 43(6), 502-9

AB The phase behavior and HLB (hydrophilic-lipophilic balance, three-phase) temp. of com. poly(oxyethylene) nonionic surfactant were studied. HLB temp. of polydisperse poly(oxyethylene) nonionic surfactants shifted toward higher temp. with decreasing surfactant concn. and/or water/oil ratio due to differences in monodisperse solubilities (S_i) of the surfactant in the excess oil phase. The relation between S_i and surfactant compn. in the surfactant phase (S_{is}) at the water-oil interface within the surfactant phase (middle-phase microemulsion) was detd. based on the geometrical relation in phase equil. S_i of the hydrophilic surfactant increased with temp. but decreased for the hydrophobic surfactant. Most com. surfactants contain non-reactive alc. and the distribution of hydrophilic chains is quite broad. Total monodisperse solubilities in oil (ΣS_i) is thus quite large and HLB temp. changes considerably with surfactant concn. or water/oil ratio. For a long hydrocarbon-chain surfactant system, elec.

cond. is useful for detecting HLB temp. applicable to phase study.

L22 ANSWER 91 OF 251 CA COPYRIGHT 2003 ACS

AN 120:31885 CA

TI Viscosity of critical mixtures: isopycnic polymer blends

AU Cerny, L. C.; Cerny, E. L.; Sutter, J. K.; Czerniawski, D.

CS Utica Coll. Syracuse Univ., Utica, NY, 13502, USA

SO Journal of Rheology (New York, NY, United States) (1991), 35(4), 525-37

AB In many multicomponent systems, a transition from a single phase of uniform compn. to a multiphase state with sepd. regions of different compn. can be induced by changes in temp. and shear. The d. difference between the phase and thermal and/or shear gradients within the system results in buoyancy driven convection. These differences affect kinetics of the phase sepn. if the system has a sufficiently low viscosity. This investigation presents more preliminary developments of a theor. model in order to describe effects of the buoyancy-driven convection in phase sepn. kinetics. Polymer solns. were employed as model systems because of the ease with which d. differences can be systematically varied and because of the importance of phase sepn. in the processing and properties of polymeric materials. Isopycnic polymer solns. were used to det. the viscosity and d. difference limits for polymer phase sepn. From these methods, the polymer-polymer interactions in a θ solvent can be examd. The rheol. measurements were extended to detect the phase sepn. and to define the crit. temp.

L22 ANSWER 96 OF 251 CA COPYRIGHT 2003 ACS

AN 119:227105 CA

TI Viscoelastic properties of dodecane/polystyrene systems

AU Kim, Dukjoon; Caruthers, James M.; Peppas, Nikolaos, A.

CS Sch. Chem. Eng., Purdue Univ., West Lafayette, IN, 47907-1283, USA

SO Polymer (1993), 34(17), 3638-47

AB Complex mech. properties of dodecane (I)-polystyrene systems were studied. The temp. and frequency dependence of the shear modulus was studied for various samples contg. different amts. of I. Addn. of I lowered the temp. at which mech. transitions occurred and broadened the transition region. The modulus decreased with increasing I content. The temp. and concn. dependences of the shift factor were detd. by time-temp. and time-concn. superposition and analyzed by a free-vol. model and an entropy model. The concn. effect on the temp.-dependent shift factor was validated by an entropy model. The frequency-dependent complex moduli master curves exptl. detd. were converted to a discrete relaxation time spectrum; subsequently, the time-dependent material function could be detd. from the relaxation spectrum. The relaxation spectrum shifted significantly to shorter times with increasing concn. of I.

L22 ANSWER 106 OF 251 CA COPYRIGHT 2003 ACS

AN 117:252272 CA

TI Aggregation behavior of Pluronic P-94 in water

AU Bahadur, P.; Pandya, K.

CS Dep. Chem., South Gujarat Univ., Surat, 395 007, India

SO Langmuir (1992), 8(11), 2666-70

AB The aggregation behavior of an ethylene oxide (I)-propylene oxide (II) triblock copolymer, Pluronic P-94 [I₂₄-II₄₇-I₂₄, mol. wt. = 4600, 40% I polymer] in water was examd. using several independent methods. Dynamic light scattering studies revealed the existence of micelles (hydrodynamic radius $R_h \sim 90$ Å) along with monomers and clusters ($R_h \sim 20$ Å and >1000 Å, resp.). Only micelles with low polydispersity were seen at high temp./concn. While surface tension measurements at 40° gave a crit. micelles concn. of ~ 0.002 wt.% and mol. area at closest packing of 128 Å²,

viscosity results showed that micelles were spherical. Fluorescence spectra of solubilized pyrene confirmed the presence of clusters, which dissolve at high concn./temp. Oscillatory shear measurements and phase diagram showed reversible thermorheol. behavior in concd. solns.: an increase in temp. changes a Newtonian liq. to a solidlike gel which further dissolves at higher temps. This soln. is again gellified with further increase in temp. ultimately leading to phase sepn. at cloud point.

L22 ANSWER 111 OF 251 CA COPYRIGHT 2003 ACS

AN 116:169370 CA

TI A quantitative method for assessing bacteriocins and other food antimicrobials by automated turbidimetry

AU Skytta, E.; Mattila-Sandholm, T.

CS Food Res. Lab., Tech. Res. Cent. Finland, Espoo, 02151, Finland

SO Journal of Microbiological Methods (1991), 14(2), 77-88

AB Automated turbidimetry was used in assessing the antimicrobial efficacy of bacteriocin-like inhibitors produced by *Pediococcus damnosus* and *P. pentosaceus*. Four bacterial strains, i.e., *Pseudomonas aeruginosa*, *P. fragi*, *Salmonella enteritidis*, and *S. infantis* were used as the test organisms. The growth of the test organisms was kinetically monitored throughout the incubation period and various growth curve parameters were used as quant. indicators of growth inhibition. The results obtained in this study showed that a kinetic method based on automated turbidimetry provides a sophisticated tool for the detn. of bacteriocin activity. A no. of growth curve parameters were applicable for the quantification of inhibitory effects. Regression anal. showed that the linear relation between the level values and the log CFU counts was in most cases highly significant. However, the area value after 24 h appeared to describe most effectively the overall inhibitory effects since all the other growth curve parameters were simple end-point values giving information solely at a single point of time. Furthermore, the area redn. rate shown by the subsequent serial dilns. of the tested antimicrobials appeared to provide addnl. data on their antibacterial potency.

L22 ANSWER 112 OF 251 CA COPYRIGHT 2003 ACS

AN 116:146442 CA

TI Systematic study on the solubilization of phospholipid vesicles by various surfactants

AU Inoue, Tohru; Yamahata, Taro; Shimozaawa, Ryosuke

CS Fac. Sci., Fukuoka Univ., Fukuoka, 814-01, Japan

SO Journal of Colloid and Interface Science (1992), 149(2), 345-58

AB The solubilization of phospholipid vesicles by surfactants were investigated for systematically selected lipid-surfactant combinations. The solubilization process was followed by the change in 90° scattered-light intensity resulting from the stepwise addn. of surfactant soln. to the vesicle prepn. Two break points appeared in the turbidity curve, which allowed a detn. of the surfactant concns. corresponding to the onset and completion of the solubilization. From the lipid concn. dependence of these crit. surfactant concns., the effective surfactant to lipid molar ratios in the surfactant-satd. lipid bilayer, R_{sat} , and in the lipid-satd. mixed micelle, R_{sol} , were estd. according to the three-stage model proposed for the vesicle solubilization. For phosphatidylcholine vesicles, both R_{sol} and R_{sat} exhibited no significant dependence on the alkyl chain length and head group type of the surfactants. When the acyl chain length of the lipids was shortened, the R_{sol} value decreased, while R_{sat} remained unaltered. For neg. charged phosphatidic acid vesicles, R_{sol} depended strongly on the head group charge of the surfactants. The evaluation of the solubilizing power of surfactants in terms of R_{sol} values leads to the

conclusion that the solubilization power for elec. neutral phosphatidylcholine vesicles is primarily detd. by the lipid acyl chain length rather than the alkyl chain length and head group type of the surfactants. The viscosity measurements demonstrated that the rod-like or disk-like mixed micelles initially formed by the lipid solubilization transform to spherical micelles at higher concn. of the surfactants.

L22 ANSWER 124 OF 251 CA COPYRIGHT 2003 ACS

AN 113:24909 CA

TI Association and surface properties of block-copoly(oxyethylene/oxypropylene/oxyethylene) L64

AU Reddy, N. Kausalya; Fordham, Peter J.; Attwood, David; Booth, C.

CS Dep. Chem., Univ. Manchester, Manchester, M13 9PL, UK

SO Journal of the Chemical Society, Faraday Transactions (1990), 86(9), 1569-72

AB The mode of assocn. of a purified sample of oxyethylene-oxypropylene block copolymer (Synperonic L64) in aq. soln. was examd. as a function of temp. and concn. by surface tension and light scattering techniques. The assocn. at 34.5 and 40° is described by a cooperative assocn. model which assumes aggregate growth by stepwise addn. of unimers. Inflections in the curves of surface tension vs. log concn. are consistent with the concns. at which enhanced light scattering is first detectable. Only limited assocn. was detected at 27°.

L22 ANSWER 141 OF 251 CA COPYRIGHT 2003 ACS

AN 108:44604 CA

TI Heterogeneous equilibrium in the quinary system sodium chloride-potassium chloride-magnesium chloride-calcium chloride-water in the 0-50°C temperature range

AU Korin, Eli J.; Roy, Aharon S.

CS Dep. Chem. Eng., Ben Gurion Univ. Negev, Beer-Sheva, 84105, Israel

SO Journal of Chemical and Engineering Data (1988), 33(1), 60-4

AB The quinary system NaCl-KCl-MgCl₂-CaCl₂-H₂O was exptl. investigated in the 0-50° temp. range in a condition of equil. with three solid phases: sodium chloride (NaCl), carnallite (KCl.cntdot.MgCl₂.cntdot.6H₂O), and bischofite (MgCl₂.cntdot.6H₂O). A correlation was established between the concn. of MgCl₂ and the two independent variables, i.e., temp. and CaCl₂ concn. The solubilities of NaCl and KCl were found to be low, less than 0.6 wt % NaCl and less than 0.4 wt % KCl.

L22 ANSWER 155 OF 251 CA COPYRIGHT 2003 ACS

AN 101:117819 CA

TI Thermodynamic properties of binary mixtures containing esters. I. Analysis of the properties of n-alkanoate + n-alkane and n-alkanoate + n-alkanoate mixtures in terms of a quasichemical group-contribution model

AU Kehiaian, Henry V.; Bravo, Ramon; Barral, Mercedes Pintos; Pazandrade, Maria Inmaculada; Guieu, Raymond; Grolier, Jean Pierre E.

CS Inst. Topol. Dyn. Syst., Univ. Paris, Paris, 75005, Fr.

SO Fluid Phase Equilibria (1984), 17(2), 187-216

AB The thermodyn. properties of n-alkanoate + n-alkane and + n-alkanoate binary liq. mixts. were examd. on the basis of the group-surface interaction version of the Guggenheim-Barker (1952) quasichem. pseudolattice theory. All the data available in the literature for liq.-vapor and liq.-liq. equil. and excess enthalpies and activity coeffs. at infinite diln. are taken into consideration. With only 4 alkyl-group increments, in addn. to the 2 group-interaction parameters for Me ethanoate, the model provides a fairly consistent description of the properties of the mixts. as functions of compn., temp. and chain length.

L22 ANSWER 172 OF 251 CA COPYRIGHT 2003 ACS
AN 93:234563 CA
TI Semiquantitative automatic measuring of color intensity or turbidity of a liquid solution
PA Kommandiittiyhtio Finnpiipette Osmo A. Suovaniemi, Finland
SO Fr. Demande, 9 pp.
PI FR 2435020 A1 19800328 FR 1978-25441 19780829
PRAI FR 1978-25441 19780829
AB A new automated method is described for the photometric, semiquant. measurement of the appearance or disappearance of a color or turbidity in solns. contg. serial dilns. The procedure is useful for serol. and immunol. studies and for enzyme immunoassays. The method, which uses a photometer in which the light beam is perpendicular to the sample, is based on the principle that the absorbance range (e.g. 0-1.0) can be divided into equal parts as a function of the no. of tubes contg. serial dilns., 2-10 equal parts being preferred. Photometric detns. are made successively in the absorbance range of each serial diln., and the results for each serial diln. are given digitally (e.g. 0-9). The method offers increased precision compared to visual detns. The method can be used with a regular photometer, or a special photometer can be contracted which gives the absorbance in the form of a digit. The method is used for measuring the titer of antistreptolysin by detecting the inhibition of erythrocyte hemolysis. The results were compared to those obtained by visual detection of hemolysis, and they were identical in 96% of the cases.

L22 ANSWER 195 OF 251 CA COPYRIGHT 2003 ACS
AN 84:185527 CA
TI An expedient technique for determining solubility phase boundaries in surfactant-water systems
AU Laughlin, Robert G.
CS Miami Val. Lab., Procter and Gamble Co., Cincinnati, OH, USA
SO Journal of Colloid and Interface Science (1976), 55(1), 239-41
AB A stepwise diln. method is described for detg. soly. limits in surfactant-H₂O systems. Only 1 g of sample and 1 day are required to obtain reliable results. Special problems such as foaming and viscous liq. cryst. phases can be dealt with. However, inner transitions involving liq. crystals are beyond the scope of this method. Samples are viewed between crossed polarizers to det. phase transition temps. on cooling. Aliquots of H₂O are added and measurements are repeated.

L22 ANSWER 197 OF 251 CA COPYRIGHT 2003 ACS
AN 84:131784 CA
TI Ionic influences on the phase transition of dipalmitoylphosphatidylserine
AU MacDonald, R. C.; Simon, S. A.; Baer, E.
CS Dep. Biol. Sci., Northwest. Univ., Evanston, IL, USA
SO Biochemistry (1976), 15(4), 885-91
AB The ionization and phase behavior of 1,2-dipalmitoyl-sn-glycero-3-phosphoserine were investigated under a variety of conditions by several different methods. As measured by turbidity changes, the temp. of the crystal-liq. crystal phase transition of this lipid was influenced by pH and mono- and divalent cation concns. The pH-transition temp. curve was congruent with the curve relating temp. to the degree of ionization of the CO₂H group of the cryst. form. The transition temp. fell from an upper plateau of 72° at low-pH values, where the CO₂H group is fully protonated, to a lower plateau of 55° at high-pH values, where this group is fully ionized. The apparent pK (pH at 50% ionization) of the cryst. form shifted from 6.0 to 4.6 to 3.7 with an increase of NaCl concn. from 10⁻³ to 0.1 to

1.0M, resp. These observations are in accord with a simple theor. anal. that utilizes diffuse double-layer theory and the influence of surface potential on surface concn. of protons. In qual. terms, an increase in electrolyte concn. reduced the surface potential, the result of which was a diminution of the surface-bulk pH difference and a lowering of the apparent pK. Assuming an area of 50 Å²/mol., the intrinsic pK_a of the CO₂H group was 2.7. A 1000-fold change of NaCl concn. produced a very large change in surface potential without influencing the transition temp. of the ionized form of the lipid. The observation, coupled with the correspondence of the transition temp. change with the change of degree of ionization, suggested that intermol. H bonding detcs. the way transition temp. changes with pH. The enthalpy of the lipid phase transition fell from ~9 kcal/mole to ~3 kcal/mole as the protonated lipid was converted to the ionized form. Titrs. of the crystal and liq. crystal phases revealed that the apparent pK of the former is 1 unit higher than that of the latter; ~30% of this difference was accounted for by the lower surface charge d. of the latter (larger area/mol.) and the remainder was due to a lower intrinsic pK. As a result of the smaller affinity of the liq. crystal phase for protons, the phase transition was accompanied by a release of protons that was detectable by cond., electrophoretic, and pH measurements. An increase in electrophoretic mobility was assocd. with melting even at high pH values and was not attributed to addnl. ionization of protons but was probably due to hydrodynamic effects. Ca²⁺ and Mg²⁺ bound strongly to phosphatidylserine vesicles, increasing the transition temp. and removing lipid from the phase melting below 72°. As a result of diminished proton competition, the interaction of divalent cations was stronger the higher the pH. Na⁺ and K⁺ reduced interaction with divalent cations by depressing the surface potential and reducing the surface concn. of the divalent ion.

L22 ANSWER 246 OF 251 CA COPYRIGHT 2003 ACS

AN 34:9794 CA

OREF 34:1537d-e

TI Phase-rule behavior of concentrated aqueous systems of a typical colloidal electrolyte-sodium oleate

AU Vold, Robert D.

SO J. Phys. Chem. (1939), 43, 1213-31

AB A preliminary report on the phase-rule behavior of Na oleate and water is presented. Visual observation of the temps. of phase change, dilatometric expts., isothermal vapor pressure detns., phase sepns., and microscopic examn. between crossed Nicols are some of the methods used in this investigation. Data and photomicrographs of various phases are presented. It is found that there are many more phases than had previously been recognized in systems of soap and water. All the equil. are successfully represented on a phase-rule diagram in which the independent variables are temp. and compn.

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L26 ANSWER 2 OF 15 CA COPYRIGHT 2003 ACS

AN 136:43351 CA

TI Characterization of Barite Suspensions During Synthesis by Light Scattering

AU Sun, Zhongxi; Skoeld, Rolf O.

CS Department of Applied Surface Chemistry, Chalmers University of Technology, Goeteborg, SE-412 96, Swed.

SO Journal of Colloid and Interface Science (2001), 242(1), 67-74

AB Barite concn. changes were made by stepwise addn. of Ba dichloride to a disodium sulfate soln. with intermediate temp. scans while light scattering was measured continuously. Comparing with independent particle size

detns., recorded turbidity changes corresponded well to changes in particle concn. and size. In the absence of dispersing agents, light scattering from stirred BaSO₄ suspensions at temps. >50° varied in a random fashion, indicating loosely assocd. particle aggregates. With a dispersant an almost linear relation between particle concn. and light scattering was established in a wide temp. range. A nonionic surfactant of the alkyl ethoxylate type and a polyacryl amide were compared with respect to their capacity to stabilize BaSO₄ suspension turbidities. Correlations obsd. between particle size and light scattering of the suspension vs. temp. and the relative light scattering stabilizing mechanism of dispersants are discussed. It is inferred that essentially monodisperse barite particles may be produced by pptn. in H₂O in the presence of a suitable dispersant. Despite the complexity of the system it was possible, with the new anal. technique, to observe that the nonionic dispersant tested did not significantly affect barite crystal growth, but the polyacryl amide has a pronounced effect on the concn. at which particle formation is 1st obsd. as well as on particle size. (c) 2001 Academic Press.

L26 ANSWER 3 OF 15 CA COPYRIGHT 2003 ACS

AN 134:299266 CA

TI Phase and aggregational studies of some inversely soluble aqueous formulations

AU Misra, S. K.; Skold, R. O.

CS Department of Applied Surface Chemistry, Chalmers University of Technology, Goeteborg, SE-412 96, Swed.

SO Colloids and Surfaces, A: Physicochemical and Engineering Aspects (2001), 179(1), 111-124

AB The effect of component mol. structure, pH, temp. and concn. on phase and aggregational behavior of aq. formulations contg. more than one polydisperse polyglycol ether based compd. was studied. The effect of adding various inversely sol. polymer compds. to base formulations on surface tension, turbidity, cond. and pH over a wide range of temps. and concns. in water was investigated. An instrument, enabling automatic temp. and concn. scans was used for the generation of pH, turbidity and cond. data. The phase behavior of polyalkylene glycol ethers is dramatically changed by the presence of surface active components. The amt. and type of polymer has a small effect on the crit. micelle concn. but is crit. for the phase behavior of the investigated formulations. Mol. wt., hydrophile-lipophile balance as well as cloud point values are important parameters which may be varied widely, and a proper choice of polyalkylene glycol can be used to affect phase sepn. behavior with respect to desired performance in industrial applications, e.g., as lubricants in metalworking fluids.

L26 ANSWER 6 OF 15 CA COPYRIGHT 2003 ACS

AN 131:20576 CA

TI Performance and recycling studies of alkaline metal cleaners

AU Ax, L. C.; Misra, S. K.; Skold, R. O.

CS Akzo Nobel Surface Chemistry AB, Goeteborg, Swed.

SO Tenside, Surfactants, Detergents (1999), 36(2), 114-121

AB An exptl. evaluation of the metal cleaning performance of 4 alk. aq. cleaner formulations and surfactant recovery by membrane filtration from mixts. with model oil contaminants was carried out. An adequate cleaning effect might be combined with good recycling properties. A rapid screening procedure for metal cleaning was combined with a simple colorimetric method and COD anal. for oil removal and surfactant recovery assays, resp. Physicochem. characterization of detergents over a wide range of temps. and concns. showed important differences in phase sepn. and aggregational

behavior and correlations with oil sepn. and surfactant recovery results were inferred.

L26 ANSWER 10 OF 15 CA COPYRIGHT 2003 ACS

AN 117:236309 CA

TI Concentration and temperature effects on aggregation, clouding and adsorption of a polydisperse non-ionic surfactant in aqueous solution

AU Mahdi, Saleh M.; Skoeld, Rolf O.

CS Dep. Eng. Chem., Chalmers Univ. Technol., Goeteborg, S-412 96, Swed.

SO Colloids and Surfaces (1992), 66(3), 203-14

AB Aq. solns. of polyethylene glycol 1-octyl ether with av. d.p. 4.5 were subjected to surface-tension and cloud-point measurements at 26-67°. The former data were used to est. values for the crit. micelle concn., space requirement for surfactants at the air/water interface, and enthalpy and free energy of micellization for the polydisperse surfactant. Derived data compared well with similar data for chem. closely related pure homologs, and this was taken to indicate close to ideal solute-solute interactions. The same solns. were also made the subjects of ultrafiltration using hydrophilic membranes. Temp.-dependent permeation ratios and flux rates suggested the occurrence of adsorption-induced excess permeation of surfactant at elevated temps. below the lower crit. temp. (LCT). Above the LCT, increasing phase sepn. resulted in very low permeation ratios, indicative of low aq. surfactant concn. under phase-sepn. conditions. Results of permeation data for individual homologs were discussed in terms of models for temp.-induced adsorption and were also compared with results using other techniques reported recently in the literature.

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